

Work Order ID 140542 - 1

140542

Page 1

Thursday, January 07, 2016 1:26:14 PM

Item ID: D2011-101 Accept *N900040100* Setup Start *NS1*

Revision ID: Stop *NS2*

Item Name: Mirror 6"

Start Date: 1/7/2016 Start Qty: 12.00 *12*

Required Date: 1/7/2016 Req'd Qty: 12.00 *12*

Reference:

Cust Item ID:

Customer:

1x Split

Approvals: Process Plan: MLS Date: JAN 07 2016 Tooling: Date:

QC: Date: SPC (Y/N): Date:

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2011	Rev G

100	PURCHASING	0.00							
100									
Purchasing	Memo	0.00							
Purchasing	Issue P/O: 30923 Mirror P/N: 28663 supplier: B C								
	INDUSTRIAL Material release note required								

JAN 08 2016

CZ 12

110	Receive & Inspect for Damage & Mat'l Certs	0.00							
110									
Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								

12x SP 16-01-13

1x SP 16-01-13

120	QC6- Inspect dimensions to drawing	0.00							
120									
QC	Memo	0.00							
Quality Control									

DAS 38 9-89

①

JAN 13 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval 	
Description Work Order Deviation				Disposition					
								Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	

Root Cause			FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date	☐	Manufacturing Process								
Misidentified	☐	Past Due								

Work Order ID 140542

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Page 2

Item ID: D2011-101 Accept ***N900040100*** Setup Start ***NS1***
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Item Name: Mirror 6"
Start Date: 1/7/2016 Start Qty: 12.00 ***12*** Cust Item ID:
Required Date: 1/7/2016 Req'd Qty: 12.00 ***12*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 *130* Small Fab	Small Fab	0.00							
Small Fab	Memo	0.01							
	1- Wrap mirror with plastic wrap								
	2- Discard Hardware & Install new hardware loosely								
	3- Crimp stud as per Dwg D2011								
140 *140* QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	Memo	0.00							
	4- Test assembly to 50lbs pull test after 24 hours								
150 *150* Packaging	Identify as per dwg & Stock Location	0.00							
Packaging	Memo	0.00							

DAS 36 9-89
16/01/14
①
DAS 38 9-89
JAN 15 2016
DAS 6 9-89
JAN 15 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐	☐ No Re-verification	☐ Pressure/Forced	☐ Temperature/Cure	☐ Power Loss/Surge	☐ Positioned Wrong				
Design ☐	☐ Operator	☐ Bending	☐ Set-up	☐ Folio/Program	☐ Outside Dimensions				
Doc/Data ☐	☐ Offset/Setup	☐ Centre Not Concentric	☐ BOM/Route	☐ Grain	☐ Over/Under tolerance				
Equip/Tooling ☐	☐ Supplier	☐ Cracks	☐ Broken/Damage/Defect	☐ Weld	☐ Part Incorrect				
Handling/Pre ☐	☐ Training	☐ Crimp/Kink/Ripple/Wave	☐ Inspection Incomplete/Unqualified	☐ Wrong Stock Pulled	☐ Part Lost/Missing				
Material ☐	☐ Use for Testing	☐ Cuffs	☐ Contamination	☐ Out of Sequence	☐ Part Moved				
Internal Transport ☐	☐ Poor Information	☐ Crushing	☐ Countersink	☐ Off-set	☐ Drawing				
Tribal Knowledge ☐	☐ Rushing	☐ Heat Treat	☐ Cut Too Short	☐ Mislabeled	☐ Finish				
LOA ☐	☐ Product Improvement	☐ Wave/Twist in Tube	☐ Instructions Incomplete/Unclear	☐ Fit/Function	☐ Misread				
Substation ☐	☐ Process Improvement	☐ Marks/Chatter	☐ Drill Holes	☐ Misaligned/off center	☐ Turning Sequence				
Past Expiry Date ☐	☐ Manufacturing Process	OTHER :							
Misidentified ☐	☐ Past Due								

Work Order ID 140542

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Thursday, January 07, 2016 1:26:14 PM

Item ID: D2011-101

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Mirror 6"

Start Date: 1/7/2016 Start Qty: 12.00

12

Cust Item ID:

Required Date: 1/7/2016 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC21- Final Inspection - Work Order Release

0.00

160

QC

Memo

0.02

Quality Control

MLJ JAN 15 2016

MLJ JAN 15 2016

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :				MRB (QS1042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval	
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER : ☐							

Picklist Print

Thursday, January 07, 2016 1:26:18 PM

Page 1

Work Order ID: 140542

140542

Parent Item: D2011-101

D2011-101

Parent Item Name: Mirror 6"

Start Date: 1/7/2016

Required Date: 1/7/2016

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP: J04.09.15 Added Steps 5-7 KJ/JLM IPP:
K05.12.15 chg black sika flex for white EC IPP L 08.11.06 new
drawing EC verify: DD IPP: M 08.12.19 Added step 3 KJ Verified
by: LL IPP rev N 10.01.13 added wrap per ncr09-118 EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

NAS1149D0416J

Purchased

No

110

Each

4,487.000

1

12

NAS1149D0416.J

**

WASHER

Location

Loc Qty

Loc Code

GA

301

m131511

301

ST260a

1986

m131511

1986

ST270

2200

m131511

2200

CHM-10601

Purchased

No

130

Each

0.0000

1

12

CHM-10601

**

Mirror 6"

D2829

Manufactured

No

130

Each

70.0000

1

12

D2829

**

Threaded Stud

Location

Loc Qty

Loc Code

GA

70

122346

70

D3014-1

Manufactured

No

130

Each

195.0000

1

12

D3014-1

**

Lock Nut

Location

Loc Qty

Loc Code

ST015

195

122272

195

DQA: _____ Date: _____

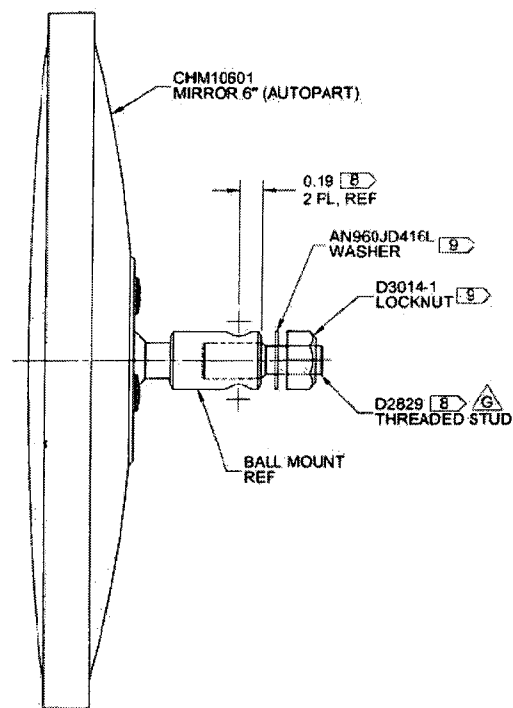
**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
Root Cause		FAULT CATEGORY							
Environment ☐	☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐			
Design ☐	☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐			
Doc/Data ☐	☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐			
Equip/Tooling ☐	☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐			
Handling/Pre ☐	☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐			
Material ☐	☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐			
Internal Transport ☐	☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐			
Tribal Knowledge ☐	☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐			
LOA ☐	☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐			
Substation ☐	☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐			
Past Expiry Date ☐	☐	Manufacturing Process ☐	OTHER : ☐						
Misidentified ☐	☐	Past Due ☐							

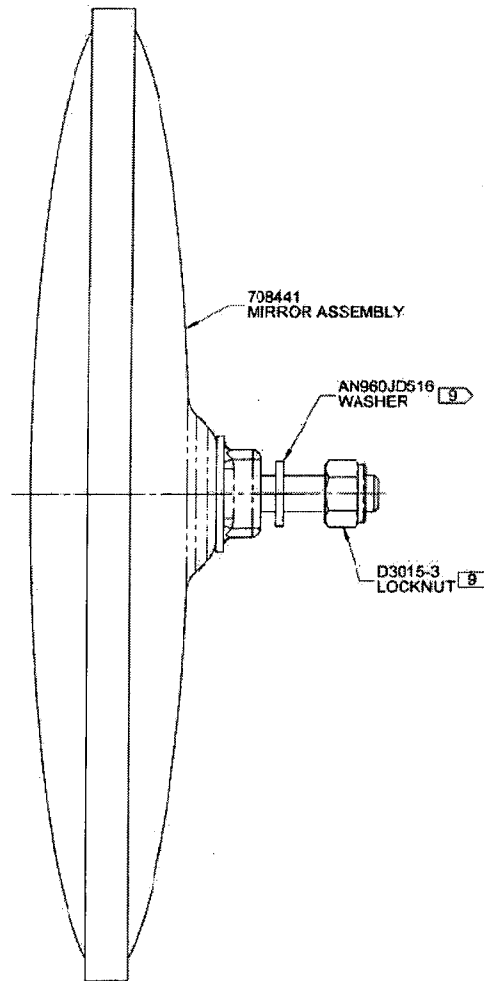
8 7 6 5 4 3 2 1



D2011-101 MIRROR ASSEMBLY 6"

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: N/A
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: D2011-101 = 0.6 lbs APPROX. ; D2011-103 = 1.0 lbs APPROX.
- 8) D2829 INSTALLATION PROCEDURE:
 - APPLY LOCKTITE 262 TO $\phi 5/16$ END OF D2829
 - THREAD BY HAND INTO BALL MOUNT UNTIL ENTIRE $\phi 5/16$ END OF D2829 IS WITHIN BALL MOUNT
 - CRIMP BALL MOUNT ON TWO OPPOSING SIDES, 0.19 FROM END AS ILLUSTRATED USING TOOL DT8317
 - CRIMP TO DEPTH OF 0.040 ± 0.010 USING R0.125
- 9) INSTALL LOOSE



D2011-103 MIRROR ASSEMBLY 8"

ITEM	QTY -101	QTY -103	P/N	DESCRIPTION
1	X		D2011-101	MIRROR ASSEMBLY 6"
2		X	D2011-103	MIRROR ASSEMBLY 8"
3	1		D2829	THREADED STUD
4	1		D3014-1	LOCKNUT
5		1	D3015-3	LOCKNUT
6	1		CHM10601	MIRROR 6" (AUTOPART)
7		1	708441	MIRROR 8" (VELVAC)
8	1		AN960JD416L	WASHER
9		1	AN960JD516	WASHER

SEE COPY
FOR
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

NO 140542 MJS
16-01-07

RELEASED
06-10-29/11

G	REDRAWN IN SOLIDWORKS TO CURRENT STANDARD AND TRANSFERRED TO "B" SIZE FORMAT. MIRROR 6" (AUTOPART) AND CHM10601 WERE MIRROR 6" (GROTE) AND P/N 28043 (ZIN D3-1); ADDED D2829 (ZIN D3-1 AND ZIN CS-1); REMOVED DRILLING NOTE, VIEW A-A AND SIKAFLEX APPLICATION NOTE. REASON: GROTE PRODUCT IS DISCONTINUED	MB	06.10.06
F	ADD HOLES FOR SEALANT ON -101	CP	04.09.10
E	NEW 8" MIRROR	CP	01.05.08
D	NEW 6" MIRROR, ADD NUT, REMOVED STUD	CP	01.04.23
C	REPLACE DOMINION AUTO MIRRORS WITH PHILLIPS. ADDED STUDS, REDRAWN	RF	99.09.01
B	SIKAFLEX 241 ADDED	JB	98.04.09
A	DWS NO. WAS DSP1011, ADDED -103	JB	90.06.15
-	NEW ISSUE	JB	90.05.31
REV.	DESCRIPTION	BY	DATE
DESIGN	JB	DART AEROSPACE LTD	
DRAWN	JB	HAWKESBURY, ONTARIO, CANADA	
CHECKED	JB	DRAWING NO. D2011	REV. G
MFG. APPR.	JB		SHEET 1 OF 1
APPROVED	JB	TITLE	SCALE
DE APPR.	JB	MIRROR ASSEMBLY	NTS
DATE	08.10.06	COPYRIGHT © 1990 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS TO BE USED FOR THE PURPOSES FOR WHICH IT WAS ISSUED AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.	

RT
SPACE

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER**Purchase Order ID PO30923****Purchase Order Date** 1/8/2016 8:38:02 AM**PO Print Date** 1/11/2016**Page Number** 1 of 2

From :
C INDUSTRIAL
A OLD FOREST
KIRKLAND, QUEBEC H9J 2Z8

VC-BCI001

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

REVISED

Contact Name		Buyer	Chantal Lavoie
Vendor Phone	514-585-8907	Customer POID	
Ship To Contact		Customer Tax #	10127-2607
Ship To Phone		Terms	COD
Ship Via:	FedEx PI collect	Currency	CAD
Ship Acct:		FOB	FCA - (Free Carrier)

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
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1	28663	Mirror 6"	1/14/2016 Yes 1/14/2016	FN	13.00 Each	\$18.70	\$243.10
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AS PER DWG D2011 REV. G
B140542

Rev 1X SP1B-01-B

Line Total: \$243.10

3	12183	Grote Mirror	1/14/2016 Yes 1/14/2016		1.00 Each	\$19.99	\$19.99
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AS PER DWG D3439 REV. B
B140521

	12183		1/21/2016		11.00 Each	\$19.99	\$219.89
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AS PER DWG D3439 REV. B
B140521

Line Total: \$239.88**Note:**

1/11/2016

DATE Jan 11 2016

Packing Slip

PS160111DA

Livrer a/Ship to:

Dart Aerospace
1270 Aberdeen Street
Hawkesbury, Ont
K6A 1K7

PO 30923

	Description	Livrer/ship	B/O
1.	6" mirror # 28663	(1) ✓	12 ✓
2.	Grote mirror # 12183	12 ✓	0
3.			
4.			
5.			
6.			
7.			

SP/6-01-13

BC Industrial..14 Old Forest..Kirkland..Quebec..H9J-2Z8
Phone 514-585-8907 bcpcl@videotron.ca

BC Industrial..... 14 Old Forest....Kirkland....Quebec....H9J-2Z8....Canada
Phone 514-585-8907 Email bcpc1@videotron.ca

FACTURE/INVOICE

INV160111DA

Jan 11 2016

Ref Notre PS# PS160111DA

Votre PO# 30923

Vendu a Dart Aerospace Ltd
1270 Aberdeen
Hawkesbury, Ont
K6A 1K7

	Description	Quan.	Prix	Total
1.	Grote mirror # 28663 ✓	1	18.70ea	18.70
2.	Grote mirror # 12183	12	19.99ea	239.88

3.

4.

5.

SP/6-01-13

258.58

HST: 33.62

292.20

#TPS/GST-142640622

#TVQ/PST-1021696907

Terms 2%10 Net 30

BC Industrial..... 14 Old Forest....Kirkland....Quebec....H9J-2Z8....Canada
Phone 514-585-8907 Email bcpcl@videotron.ca

Certificate of Compliance

Jan 11 2016

Dart Aerospace
1270 Aberdeen
Hawkesbury, Quebec
K6A-1K7

ATT: Chantal Lavoie

This is to confirm that the parts delivered on our PS 160111DA

Grote mirror 28663 ✓

Grote mirror 12183 ✓

SP/6-01-13

conforms to the specifications outlined on your purchase
order 30923

Thank you



Bryan Cameron

#TPS/GST-142640622
#TVQ/PST-1021696907

Terms 2%10 Net 30